

## 4.12 SOCIOECONOMICS

### 4.12.1 AFFECTED ENVIRONMENT

This section describes the existing conditions and socioeconomic impacts resulting from the Proposed Action and alternatives. The socioeconomic setting for this section includes data on population, employment, income, housing, and schools.

#### 4.12.1.1 RESOURCE STUDY AREA

The study area consists primarily of the six counties (Sutter, Placer, Sacramento, San Joaquin, Contra Costa, and Alameda) most directly affected by the Proposed Action and alternatives, both temporarily during construction and in the long term by receiving economic benefits from the proposed facilities. In addition, the study area encompasses 11 additional counties where more minor and indirect socioeconomic impacts could occur: Butte, Calaveras, Colusa, Glenn, El Dorado, Lake, Nevada, Tehama, Sierra, Yolo, and Yuba Counties. The study area includes both rural and urban areas, including the Sacramento metropolitan area.

#### 4.12.1.2 ISSUES OF ENVIRONMENTAL CONCERN

Issues of environmental concern within the study area include displacing existing residents, disrupting existing businesses, reducing property values, effects on income and employment, and if the project induces new growth, long-term population increases and the resultant demand for housing and schools. The environmental impacts of these issues could occur temporarily during construction and long-term during operation. The types of potential impacts listed above could have a positive or negative effect on the budgets of local agencies if tax revenues change. Potential socioeconomic benefits include those associated with a long-term increase in the reliability of the power supplies transmitted over transmission lines, and a temporary increase in employment and income during construction.

#### 4.12.1.3 CHARACTERIZATION

The socioeconomic setting is characterized by population, employment, income, housing, and school data for the 17 counties in the study area, with an emphasis on the six primary counties.

Population includes the number of residents in the study area. The population in the primary counties totaled 4,506,983 in 2000. Sacramento County (Segments B, C, D, and E through MP 11.0) and Alameda County (Segment E from MP 44.8 to Tracy Substation) have the largest populations of the study area counties (U.S. Census 2002).

Employment data include labor force size, labor sectors, and statistics on unemployment. Labor sectors are divided into farm or nonfarm types. The wholesale trade, services, and state/local government sectors contain the largest numbers of jobs in both the study area counties and the primary counties. Within the primary counties, the mining and construction sector provides 119,800 jobs (CEDD 2001).

The unemployment rate for the counties in the study area in 2000 was 5.8 percent. In 2000, the unemployment rate was about 5 percent for the primary counties. In 2000, Colusa County had the highest unemployment rate (17.6 percent), followed by Sutter County (Segments A, B, and F) with 11.7 percent. Alameda County had the lowest unemployment rate (3 percent) (U.S. Census 2002).

Income information is provided as an annual total by county and as per capita income. Per capita personal income for the counties in the study area was \$25,283 in 1999. The average per capita income for the primary counties was \$30,059. In 1999, Contra Costa County (Segment E, MP 43.3 to 44.8) had the highest per capita personal income (\$37,994) and Yuba County had the lowest (\$17,485) (BEA 2000).

Housing data include numbers of housing units and the vacancy rate. In 2000, the study area counties had a housing stock of approximately 2.2 million units, and the average vacancy rate was six percent (125,055 vacant units). The primary counties had approximately 1.7 million housing units in 2000, with an average vacancy rate of 4 percent (71,214 vacant units). Alameda County (Segment E, MP 44.8 to Tracy Substation) had the largest housing stock in the study area (540,183 units), followed by Sacramento County (Segments B, C, D, and E to MP 11.0) (474,814 units) and Contra Costa County (Segment E, MP 43.5 to 44.8) (354,577 units) (U.S. Census 2002).

School enrollment and capacity are important considerations in assessing the effects of growth. In 1999, 1,709,967 students attended school in the 221 districts within the study area. Within the primary counties, 1,322,767 students attended schools in 109 districts (U.S. Census 2002).

### 4.12.2 ENVIRONMENTAL CONSEQUENCES

#### 4.12.2.1 STANDARDS OF SIGNIFICANCE

The Proposed Action and alternatives would have a significant and adverse effect on socioeconomic resources if they

- Cause a major and regionally-significant reduction in employment or income,
- Induce growth or population concentrations,
- Displace residences or physically divide the community they live in,
- Create a demand for additional housing that could not be sustained within the study area,
- Cause a substantial decrease in property values,
- Displace businesses or cause a major disruption in their business,
- Generate student enrollment that exceeds the capability of responsible authorities to accommodate,
- Lead to a major reduction in the revenues or expenditures of government agencies, or substantially adversely affect facilities providing public services, or
- Convert prime, unique, or farmland of statewide importance to nonagricultural use.

#### 4.12.2.2 ENVIRONMENTAL PROTECTION MEASURES

EPMs for socioeconomic issues are not listed in Table 3-4; however, the following standard practices are applicable to temporary and long-term use of lands not owned by Western.

- Any land temporarily required for construction of the proposed facilities (such as conductor pulling sites, material and equipment storage areas) would be arranged through temporary-use permits or by specific arrangements between the construction contractor and affected landowners. Similar arrangements would be made with business owners to avoid or minimize disruptions in their business (posting detours and limiting the area and time of disruption, by obtaining temporary-use permits, or by specific arrangements between the construction contractor and affected landowners, or through purchase at fair market value).
- If a new ROW were needed, Western would acquire land rights (easements) in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (P.L. 91-646), as amended. Easements would be purchased through negotiations with landowners at fair market value, based on independent appraisals. The landowner would normally retain title to the land and could continue to use the property in ways that would be compatible with the transmission line.

#### 4.12.2.3 IMPACTS FROM PROPOSED ACTION—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION; REALIGNMENTS; RECONDUCTORING ELVERTA SUBSTATION TO TRACY SUBSTATION

##### Short-Term Impacts

Transmission line construction would create new temporary jobs for construction workers and temporarily cause a positive increase in income and related economic activity, especially in the primary counties. These impacts, along with the significant amount of material to be purchased to construct the transmission line, would increase revenue for some businesses and create a minor increase in the tax revenue received by local and state agencies. Some material would be purchased from businesses within the study area.

As noted in the footnotes to Table 3-3, the total work force needed to construct the Proposed Action at any one time has been estimated to be 50 to 70 workers. Western assumes that approximately 40 to 50 percent of these workers would be hired locally. Workers with specialized skills may be brought in from outside the primary counties for specific aspects of the construction process. As noted previously, 119,800 persons were employed in the mining and construction sector in 1999 within the primary counties. This existing labor pool would likely be sufficient to meet the job opportunities generated by the Proposed Action. This beneficial impact on worker employment and income would indirectly benefit local businesses when workers buy gas and food, or as some workers stay in local motels.

The proposed construction areas are within commuting distance from residential communities in the study area, particularly the primary counties. Construction workers not hired locally would likely be accommodated by the 125,055 vacant housing units in the study area counties, including 71,215 vacant units in the primary counties. Because of the temporary nature of the construction, relocating construction workers would also be temporary and would likely not require the relocation of their families. Thus, an increase in the demand for schooling would not occur. The Proposed Action would not create a demand for additional housing or exceed the capacity of schools, and these potential impacts would not be significant.

Most of the Proposed Action would be constructed within rural areas, and most of the business operations in and near the ROW are agricultural. However, a portion of the transmission line would traverse urbanized areas, including the city of Sacramento. The Proposed Action may require the use of nearby areas for construction, including staging areas and access roads.

In areas where the Proposed Action would require new ROW, careful siting would occur to avoid any displacement of existing residences or businesses. Therefore, this type of potentially significant impact would not occur.

### **Long-Term Impacts**

Potential long-term impacts on prime farmland and related farming activities would likely not be significant and would occur in areas where land would be needed to construct the new transmission structures included in the Proposed Action. A portion of the land of Segment A<sub>1</sub> is prime farmland (about 6.7 acres) and would likely be taken out of agricultural production. This land would be a minor amount from the standpoint of individual farming operations and businesses. The amount of farmland involved is also insignificant from a regional standpoint, and any lost tax revenue would be minor compared to the total tax revenues of affected local and state agencies. Although farming would continue between the structures and within the ROW, some farming operations could experience some minor but negative impacts on their farming practices.

Customers of utilities served by Western and the transmission lines would experience an increase in the reliability of their power supply. This long-term, positive impact would lead to indirect economic benefits, including less frequent production losses at businesses during power outages and related reductions in income for business owners and their employees.

The Proposed Action could cause minor negative impacts on property values. Incremental impacts would occur where new ROW would be required parallel to an existing ROW. Significant impacts may occur when the new ROW is not within or next to an existing transmission ROW, along Segment G (approximately 1.4 miles) where the new ROW would be on farmland. A few rural residences found in this area would experience a change in the views from their property (see the related Visual Resources analysis in Section 4.14). These residences already have transmission lines in the same viewshed where the new ROW would be located. The rest of the Proposed Action would either be constructed within existing ROW or in new ROW parallel and adjacent to existing transmission lines; thus, existing property values already account for the presence of transmission lines in the viewsheds of nearby residences and businesses in these areas.

Studies of the potential effects of transmission lines on property values have been conducted, but very little statistical information exists on the relationship between property values and the construction of new transmission lines. The Edison Electric Institute pub-

lished an inventory of the major research to date on how the public perceives transmission lines (EEI March 1992). The study concluded that overhead transmission lines have the potential to reduce the sale price of residential and agricultural property. This effect is generally small (0 to 10 percent) for single-family homes, could be slightly greater for some types of rural properties (up to a 15-percent decrease), and diminish over time after construction.

A study in Connecticut (Real Estate Counseling Group of Connecticut, 1984), found that 90 percent of all real estate professionals surveyed thought the presence of transmission lines generally had a negative effect, on sales price, but a statistical analysis showed only 7 percent of the property owners reported paying lower prices because of the presence of transmission lines.

Operations of the proposed facilities would not induce a long-term population increase, or a related increase in the demand for housing and schools. While the Proposed Action would help accommodate future growth in the study area, the magnitude, location, and nature of future growth is determined by local planning agencies and the boards and commissions that direct them.

#### **4.12.2.4 IMPACTS FROM ALTERNATIVE 1—RECONDUCTORING O'BANION SUBSTATION TO TRACY SUBSTATION**

The socioeconomic impacts of Alternative 1 would be similar to those summarized for the Proposed Action. This section focuses on potential impacts that would differ from the Proposed Action. None of the socioeconomic impacts associated with Alternative 1 would be significant.

Fewer construction workers and materials would be required to construct Alternative 1 as compared to the Proposed Action. This would lead to fewer economic benefits associated with the construction phase of the transmission line, and less demand for housing from workers not hired locally. There would also be less potential for minor disruptions at nearby businesses and residences with Alternative 1.

Alternative 1 would cause no permanent disturbance to farmland. Unlike the other action alternatives, Alternative 1 would not require any new ROW. The potential for adverse property value impacts is the lowest with this alternative.

#### 4.12.2.5 IMPACTS FROM ALTERNATIVE 2—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION AND REALIGNMENTS

The socioeconomic impacts of Alternative 2 would be similar to those summarized for the Proposed Action, although unlike the Proposed Action and Alternative 1, none of these impacts would occur south of Elverta Substation. None of the socioeconomic impacts associated with Alternative 2 would be significant. The amount of prime farmland permanently affected by new transmission structures under this alternative is the same as with the Proposed Action (approximately 6.7 acres). Like the Proposed Action, this alternative includes the 1.7 miles of new ROW in Segment G that is not adjacent and parallel to existing ROW. The potential for adverse impacts on property values is greater in this segment than in others, but the magnitude of the impact still is not expected to be significant for the reasons described in Section 4.12.2.3.

#### 4.12.2.6 IMPACTS FROM ALTERNATIVE 3—NEW TRANSMISSION ELK GROVE SUBSTATION TO TRACY SUBSTATION

Alternative 3 differs from the Proposed Action and the other action alternatives in that no activities would occur north of Elk Grove Substation. Otherwise, the types of impacts described for the Proposed Action also apply to this alternative. Unlike the Proposed Action and Alternative 2, this alternative does not include any new ROW that would not be adjacent and parallel to existing transmission ROWs. Therefore, the potential for adverse impacts on property values is lower with this alternative.

This alternative includes the most amount of acreage that could be removed from agricultural production on a long-term basis. About 22.5 acres of land would be needed for transmission structures (see Table 3-2) and most of this land would likely be prime farmland; however, for the reasons described in Section 4.12.2.3, related impacts to farming operations and practices are not expected to be significant.

#### 4.12.2.7 IMPACTS FROM THE NO ACTION ALTERNATIVE

Under the No Action Alternative, the existing single- and double-circuit 230-kV transmission system between O'Banion Substation and Tracy Substation would be operated and maintained as it is presently. The line would periodically undergo routine maintenance or emergency repairs along the existing ROW and access roads. The No Action Alternative would therefore not cause any of the new construction- and operation-related impacts discussed in the sections above. As periodic maintenance and operations activities increase, local spending on food,

lodging, and minor field equipment would also increase, resulting in short-term beneficial impacts.

The risk of power outages due to the existing problem in the study area could increase under the No Action Alternative, and outages could become more frequent and severe. Any outages would result in increasing wide-spread, negative socioeconomic impacts to local businesses, their employees, and perhaps the fiscal resources and related public services of affected agencies.

### 4.13 SOILS

#### 4.13.1 AFFECTED ENVIRONMENT

This section addresses soils within the study area and discusses constraints posed during construction, operation, and maintenance of the transmission line. The lower Sacramento Valley has many landforms. Nearly level floodplains exist along the Sacramento, American, and Cosumnes rivers and along the smaller creeks. Basin and terrace remnant landforms are in the American Basin, north of the American River and east of the Sacramento River. The most extensive area is the main valley floor, which extends from the northern Sacramento county line to the southern county line and is the primary area of the Draft EIS investigation. The main valley floor consists of nearly level, low terraces, basin rims, and local basins with slopes of less than one percent. The basin rims and local basins extend along the western edge of the main valley floor from south of Sacramento to the Cosumnes River (Soil Survey of Sacramento County–Soil Conservation Service).

Activities affecting soils would fall under the Federal EPA regulations (40 CFR Part 122) requiring the permitting of storm water pollution under the National Pollutant Discharge Elimination System (NPDES). The California Regional Water Quality Control Board has jurisdiction over the enforcement of the *Storm Water Program* in California. This agency regulates construction activities to control surface water runoff, transport of contaminants, and increased sedimentation in waterways.

##### 4.13.1.1 RESOURCE STUDY AREA

The study area for the Proposed Action and alternatives extends from Sutter County to Sacramento County, Placer County, San Joaquin County, Contra Costa County and

Alameda County. Tables 4.13-1 and 4.13-2 describe the soils that exist along the Proposed Action and alternatives which cross Sacramento and San Joaquin counties. Soil reports for Sutter and Contra Costa counties are being revised, and new reports would be available soon. Soils data from Sacramento and San Joaquin counties were used for this analysis.

#### 4.13.1.2 ISSUES OF ENVIRONMENTAL CONCERN

Issues of environmental concern for soils include erosion, drainage, high water erodibility, steep slopes, and compaction from construction disturbance, and potential impacts to existing access roads and new roads. These issues are somewhat heightened due to the large number of ditches, canals, rivers, and creeks, and the proximity of the water

table to the land surface. Construction and maintenance could cause sedimentation, loss of farmland, and revegetation. Construction of structures, footings, and access roads in areas with steep or unstable slopes could create hazardous conditions that may pose a threat of disruption to structures. Increased soil compaction and rutting in the transmission line corridor could occur during construction, operation, and maintenance of the transmission lines.

#### 4.13.1.3 CHARACTERIZATION

The study area is in the central portion of California's Central Valley. To the north is the Sacramento Valley, and to the south, the San Joaquin Valley. The primary land use types are irrigated cropland, livestock grazing, and urban development.

**Table 4.13-1. Soils in Sacramento County**

Soil	Description	Permeability (in/hr)	Erosion Factor K <sup>1</sup> Scale (good .02 - .69 poor)
<b>Gazwell-Rindge</b>	Very poorly drained, highly organic mineral soils and organic soils that have a high water table throughout the year and are protected by levees.	2.0 - 20.0	0.02 - 0.28
<b>Sailboat-Scribner-Cosumnes</b>	Somewhat poorly drained and poorly drained soils that have a seasonal high water table and are protected by levees.	0.06 - 2.0	0.24 - 0.43
<b>Egbert-Valpac</b>	Somewhat poorly drained and poorly drained soils that have a high water table throughout the year or during part of the year and are protected by levees.	0.06 - 2.0	0.24 - 0.37
<b>Columbia-Cosumnes</b>	Somewhat poorly drained soils that are subject to flooding or are protected by levees.	0.06 - 6.0	0.28 - 0.43
<b>Rossmor-Vina</b>	Well drained soils that are protected by levees or are subject to flooding.	0.6 - 6.0	0.20 - 0.32
<b>Urban Land-Americanos-Natomas</b>	Urban land and well drained soils.	0.6 - 2.0	0.10 - 0.43
<b>Clear Lake</b>	Somewhat poorly drained soils that have a seasonal high water table, are protected by levees, and are very deep or deep over a cemented hardpan.	0.06 - 0.20	0.24 - 0.32
<b>Dierssen</b>	Somewhat poorly drained soils that have a perched water table, are protected from levees, and are moderately deep or deep over a cemented hardpan.	0.06 - 0.60	0.24 - 0.32
<b>San Joaquin</b>	Moderately well drained soils that are moderately deep over a cemented hardpan.	0.06 - 2.0	0.24 - 0.37

Source: Original 2002

1. Erosion Factor K -- The erosion factor K indicates the susceptibility of a soil to sheet and rill erosion.

The estimates are based on percentage of silt, very fine sand, sand, and organic matter (as much as 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion.

**Table 4.13-2. Soils in San Joaquin County**

Soil	Description	Permeability (in/hr)	Erosion Factor K <sup>1</sup> Scale (good .02 - 0.69 poor)
<b>Rindge-Kingile-Ryde</b>	Very poorly drained, organic soils and very poorly drained, highly organic, moderately fine textured, mineral soils, all of which are very deep and have been partially drained; on deltas and flood plains.	0.06 - 20.0	0.02 - 0.28
<b>Peltier-Egbert</b>	Poorly drained, highly organic, moderately fine textured soils that are very deep and have been partially drained; on deltas and flood plains.	0.06 - 20.0	0.20 - 0.28
<b>Merritt-Grangeville-Columbia</b>	Poorly drained and somewhat poorly drained, moderately coarse textured and moderately fine textured soils that are very deep and have been partially drained or drained; on flood plains.	0.06 - 6.00	0.28 - 0.43
<b>Willows-Pescadero</b>	Poorly drained, moderately fine textured and fine textured, saline-sodic soils that are very deep and have been partially drained; in basins.	<0.06 - 0.20	0.28 - 0.32
<b>Jacktane-Hollenbeck-Stockton</b>	Somewhat poorly drained and moderately well drained, fine textured soils that are moderately deep and deep to a cemented hardpan and that have been drained in some areas; on basin rims and in basins.	0.06 - 6.00	0.24 - 0.37
<b>Guard-Devries-Rioblancho</b>	Poorly drained and somewhat poorly drained, moderately coarse textured and moderately fine textured soils that are moderately deep to a cemented hardpan or are very deep and that have been drained in most areas; on basin rims.	0.06 - 6.00	0.24 - 0.37
<b>Capay</b>	Moderately well drained, fine textured soils that are very deep and have been subject to artificial wetness; mainly in interfan basins.	0.06 - 0.20	0.24 - 0.37
<b>Capay-Stomar-Zacharias</b>	Moderately well drained and well drained, moderately fine textured, gravelly moderately fine textured, and fine textured soils that are very deep; in interfan basins and on alluvial fans and stream terraces.	0.06 - 2.00	0.20 - 0.37
<b>Tokay-Acampo</b>	Moderately well drained and well drained, moderately coarse textured soils that are deep to a cemented hardpan or are very deep; on low fan terraces.	2.00 - 6.00	0.32 - 0.37
<b>San Joaquin-Bruella</b>	Moderately well drained and well drained, moderately coarse textured and medium textured soils that are moderately deep to a cemented hardpan or are very deep; on low terraces	<0.06 - 6.00	0.24 - 0.37

Source: Original 2002

1. Erosion Factor K -- The erosion factor K indicates the susceptibility of a soil to sheet and rill erosion.

The estimates are based on percentage of silt, very fine sand, sand, and organic matter (as much as 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion

Soil information was obtained from the Sacramento and San Joaquin Soil Surveys prepared by the Soil Conservation Service, U. S. Department of Agriculture (USDA 1992 and 1993). Reference numbers in the tables correlate soil types with the general soil map of each county. Soil information generally includes data describing the engineering and physical/chemical properties of each individual soil type. Soil permeability and the erosion factors are most pertinent to this investigation.

The soil types and soil assemblages in the study area fall into three distinct sections: 1) O'Banion Substation to Hurley Substation; 2) Hurley Substation to the San Joaquin County line at Segment E at MP 11.0; and 3) San Joaquin County line to the Tracy Substation.

Soils in the O'Banion Substation to Hurley Substation section include the "Sailboat-Scribner-Cosumnes" and "Clear Lake" series. These soil types have low permeability and a moderate erosion factor. For the Hurley Substation to San Joaquin County line section, the soil is mostly the San Joaquin type, which also has a low permeability and moderate erosion factor. For the San Joaquin County line to Tracy Substation section, the major soil types include the "Peltier-Egbert," "Merritt-Grangeville-Columbia," "Jacktane-Hollenbeck-Stockton," "Tokay-Acampo," and the "San Joaquin-Bruella" soils. These soils have relatively high permeability values and moderate erosion factors.

Additional soil data is available from the soil surveys (USDA 1992 and 1993). This includes information pertaining to the soil depth, texture, plasticity, clay

content, bulk density, water capacity, salinity, shrink-swell potential, and wind erodibility. This information is used to classify the type of soil.

### 4.13.2 ENVIRONMENTAL CONSEQUENCES

Soils could be impacted by construction and maintenance of the transmission line and associated access roads. Potential impacts would be limited to the ROW for the transmission line, pulling and tensioning sites, any construction office or laydown areas, and access roads. The impacts of the Proposed Action and alternatives would be similar in nature, although the specific locations and total acreage impacted would vary depending on the alternative selected. Alternatives incorporating construction of new transmission lines would have a higher potential for impact than those involving reconductoring. Impacts from access road construction and/or use would be similar for all alternatives, but alternatives requiring more access roads that are new would have a higher potential for impact. Use of existing access roads would be maximized to the extent possible to minimize disturbance and soil compaction.

#### 4.13.2.1 STANDARDS OF SIGNIFICANCE

The Proposed Action and alternatives could have a significant effect on soils if they would

- Increase erosion along the transmission line ROW,
- Affect downstream resources by erosion and sedimentation, or
- Increase soil compaction so current use or revegetative growth would be significantly altered.

#### 4.13.2.2 ENVIRONMENTAL PROTECTION MEASURES

EPMs for soil resources from Table 3-4 include the following:

- On completing the work, all work areas except access trails would be scarified or left in a condition that would facilitate natural or appropriate vegetation, provide for proper drainage, and prevent erosion.
- In construction areas (for example, material storage yards, structure sites, and spur roads from existing access roads) where ground disturbance is substantial or where recontouring is required, surface restoration would occur.
- Access roads would be built at right angles to the streams and washes to the extent practicable. Culverts would be installed where needed. All construction activities would be conducted to minimize disturbance to vegetation and drainage channels.

- Excavated material or other construction materials would not be stockpiled or deposited near or on stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff or can encroach, in any way, upon the watercourse.
- Nonbiodegradable debris would not be deposited in the ROW. Slash and other biodegradable debris would be left in place or disposed.
- All soil excavated for structure foundations would be backfilled and tamped around the foundations, and used to provide positive drainage around the structure foundations. Excavated soil excess to these needs would be removed from the site and disposed of appropriately.
- A California registered Professional Geotechnical Engineer would evaluate the potential for geotechnical hazards and unstable slopes on the centerline route and areas of new road construction or widening on slopes with over 15 percent gradient.
- All construction must be in conformance with Western's *Erosion Control and Revegetation Plan*.
- If wet areas cannot be avoided, Western would use wide-track and/or balloon tire vehicles and equipment and or timber mats.
- All construction vehicle movement outside the ROW normally would be restricted to predesignated access, contractor-acquired access, or public roads.
- When feasible, all construction activities would be rerouted around wet areas while ensuring that the route does not cross sensitive resource areas.
- Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses would be conducted to prevent muddy water and eroded materials from entering the streams or watercourses with construction of interceptors.

#### 4.13.2.3 IMPACTS FROM PROPOSED ACTION—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION; REALIGNMENTS; RECONDUCTORING ELVERTA SUBSTATION TO TRACY SUBSTATION

Soil impacts are proportional to the area of surface disturbance (from construction of structures and access roads) for each alternative. The Proposed Action would involve approximately 330 new structures, more than for the alternatives. The Proposed Action would result in 66 acres of long-term disturbance.

New structure construction would require local grading that would alter the topography, particularly on steep

slopes. Grading could create unstable cut-and-fill slopes, especially on steep slopes and areas with weak rock materials. Most grading would be required for construction of suitable footings for the transmission structures. Some grading would be needed for the temporary spur roads, widening existing access roads, and construction pads for structure sites on steep slopes to provide safe, level surfaces for excavation equipment, cranes, bucket trucks, and structure assembly. Hazards from unstable slopes and seismic hazards could affect roads. Debris clearing and road repair would be required as a normal response to such an event.

The Proposed Action would not result in significant impacts because EPMS described above would be enforced during construction and maintenance of the transmission line. Western would follow its erosion control and revegetation procedures to minimize potential erosion. EPMS that control erosion would also minimize erosion and sedimentation impacts to downstream resources. EPMS would also minimize impacts on soil compaction that could potentially affect the time required for successful revegetative growth or current use such as agricultural.

Even with the application of EPMS, soil erosion on construction sites cannot be eliminated, but it can be reduced to rates similar to pasture lands (or about 1.5 tons per acre per year). Therefore, soil impacts are considered insignificant.

#### **4.13.2.4 IMPACTS FROM ALTERNATIVE 1—RECONDUCTORING O'BANION SUBSTATION TO TRACY SUBSTATION**

Alternative 1 would reconductor 99.2 miles on existing ROW from O'Banion Substation to Tracy Substation (Segments A, B, C, D and E). This reconductor alternative would require 199 new structures. Alternative 1 would involve fewer new structures than the Proposed Action and would have less environmental impact. Alternative 1 would also not impact any additional acreage. It would be constructed entirely on existing ROW using existing access roads.

#### **4.13.2.5 IMPACTS FROM ALTERNATIVE 2—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION AND REALIGNMENTS**

Alternative 2 would be identical to the Proposed Action from O'Banion Substation to Elverta Substation, but would not entail any work south of Elverta. This alternative would consist of 27.4 miles of new construction on new ROW (Segments A<sub>1</sub> and G) and 4.2 miles of new construction on existing ROW (Segment B). 3.6 miles of existing line with encroachments would be abandoned (Segments F and H). Alternative 2 would require 167 new

structures, while 17 existing structures would be abandoned in place. Alternative 2 would temporarily disturb 515 acres, and permanently impact 66 acres.

Alternative 2 would have the same impact on soil as the Proposed Action north of Elverta Substation.

#### **4.13.2.6 IMPACTS FROM ALTERNATIVE 3—NEW TRANSMISSION ELK GROVE SUBSTATION TO TRACY SUBSTATION**

Alternative 3 consists of 46.2 miles of new construction on new ROW between Elk Grove Substation and Tracy Substation (Segment E<sub>1</sub>). This alternative would require 225 new structures and 47 miles of new access roads. Alternative 3 would disturb 855 acres, with 108 acres disturbed for the long term.

Although the impacts of Alternative 3 would be confined to between Elk Grove Substation and Tracy Substation, it would be new construction on new ROW. Therefore, Alternative 3 impacts more acreage and requires more miles of access roads than any other alternative. The potential impacts to soil would be the highest for this alternative. Even so, no significant impacts have been identified and impacts to soil are considered insignificant.

#### **4.13.2.7 IMPACTS FROM THE NO ACTION ALTERNATIVE**

Under the No Action Alternative, the existing 230-kV transmission system between O'Banion Substation and Tracy Substation would continue to be operated and maintained. The line would be periodically accessed for routine maintenance or emergency repairs along the existing ROW and access roads. Vehicles could cause rutting on dirt access roads in wet conditions. Otherwise, this action would have negligible impact to soil.

### **4.14 VISUAL RESOURCES**

#### **4.14.1 AFFECTED ENVIRONMENT**

The objectives of the visual resource analysis were to identify and describe visual resources, including visual quality and sensitivity, that could be affected by construction, operation, and maintenance of the Proposed Action or alternatives. Visual quality is the degree of contrast and variety within a landscape. Pleasant landscapes generally have high visual quality. Landscapes of high visual quality may contain distinctive landforms, vegetation patterns, and/or water forms. Visual sensitivity is the concern by viewers toward change to visual quality. Visual sensitivity is higher in natural or unmodified landscapes. The purpose of the analysis was to identify potential obstructions or modifications of present views in the landscape.

#### 4.14.1.1 RESOURCE STUDY AREA

The visual resources study area consists of viewsheds where any of the Proposed Action or alternatives would be seen from sensitive viewing locations such as travel routes, residences, and recreation areas.

#### 4.14.1.2 ISSUES OF ENVIRONMENTAL CONCERN

Issues raised by the public and agencies include effects on landscapes of high visual quality, altering the existing landscape, and consistency with the goals and objectives of the local and county general plans.

#### 4.14.1.3 CHARACTERIZATION

The Proposed Action and alternatives would be located in the Central Valley of California. This area consists of a central alluvial plain drained by the Sacramento and San Joaquin rivers. This portion of the Central Valley contains two basins, the Sutter Basin and the American Basin. These basins are flat agricultural land of average visual quality. No distinctive landforms, waterforms, or vegetative patterns are present. The landscape has been modified by agricultural practices. Transmission lines criss-cross many portions of the study area.

Around the O'Banion Substation, visual quality is average with no distinctive landscape features. The agricultural landscape has been modified by rural residential uses. For this area, as well as many other portions of the study area, there are transmission lines along the landscape horizon. In some locations, particularly in close visual proximity, these lines dominate views and attract viewer attention.

Agricultural uses along most of Segments A and A<sub>1</sub> have created a patchwork landscape. Segments A and A<sub>1</sub> cross the Feather River (MP 11.5). The river is a distinctive water form feature resulting in an area of high visual quality. The visual sensitivity along Segment A and A<sub>1</sub> is moderate resulting from landscape modifications including other transmission lines.

The visual setting for Segments B, F, G, and H is agriculture and rural residences. Most of the visual sensitivity along these segments is moderate from landscape modifications. The visual quality of the area ranges from moderate to low because of the flat landscape, common vegetation patterns, and landscape modifications. No distinctive landscape features are present. Several other transmission lines reduce the visual quality, particularly near the Elverta Substation, where the visual quality is low.

Segment C and the northern portion of Segment D cross through urban landscapes of Sacramento. Visual quality is average to low from extensively modified landscapes. These segments cross a network of roads and highways.

The freeways are heavily traveled commuter routes and, for the most part, are not scenic or used for pleasure driving. However, the freeways are protected by scenic corridors. The visual sensitivity from the freeways in the Sacramento metropolitan area is generally low to moderate.

Along Segment C (MP 7.6 to 11.1) and Segment D (MP 0.0 to 1.0), the route is within view of the American River Parkway. Although other transmission lines are visible within the Parkway, its water feature, vegetation patterns, and topographic formations provide average to high visual quality. The American River is protected in Sacramento County by a scenic corridor (Sacramento County 1997). The visual sensitivity is moderate to high. Moving south, Segment D crosses a disturbed landscape of low visual quality with gravel quarries, landfill (MP 4.2 through 5.5), and Hedge Substation (MP 6.9). As Segment D approaches the Elk Grove Substation, the landscape is a mix of rural and pockets of industrial sites that have a moderate to low visual sensitivity. New residential growth in the Elk Grove area Segment D (MP 6.0 to 12.0) has a low visual sensitivity.

The visual setting for Segments E and E<sub>1</sub> at Elk Grove Substation is semi-industrial. There are several existing transmission lines and communication towers in the area. The visual quality is low to average with no distinctive landforms or vegetative patterns. At MP 3.3, the segments would cross the Cosumnes River and Cosumnes River Preserve (MP 3.0 through 3.5) where water features provide average to high visual quality.

Most of Segments E and E<sub>1</sub> are in predominately flat agricultural land with average visual quality. The segments would cross Interstate 5 at MP 18.9. The line would parallel Interstate 5 to the west for about 6 miles, where visual sensitivity would be moderate. The proposed segments would cross the San Joaquin River and the Stockton Deep Water Channel (MP 29.1). Visual quality of this industrial area is low to average. The water feature has been greatly modified by channelizing the waterway. For about 10 miles, Segments E and E<sub>1</sub> would cross several waterways, including the Mokelumne Aqueduct (MP 30.3) and Middle River (MP 31.4), where visual quality is average with no distinctive landscape features to the mostly modified waterways. The segments would traverse southwest through the Union Island area (MP 37.5 through 43.4). The agricultural area is dissected with a series of sloughs and drawings typical of the delta region. The visual quality is average with no distinctive landscape features. Visual sensitivity along these portions of Segments E and E<sub>1</sub> is moderate to low.

Segments E and E<sub>1</sub> would pass by the eastern side of the Clifton Court Forebay (MP 43.7). The viewshed contains a network of transmission lines and telephone lines and

communication towers, with transmission lines dominating the visual setting. Around Tracy Substation, the visual setting is an expansive flat valley floor contained by rolling hills rising to ridgelines. A number of transmission lines feed in and out of the substation, which draws visual attention. Although the landscape contains varied topography, modifications from structures have resulted in an average visual quality. Visual sensitivity would be moderate.

Results of the visual analysis identified several river locations of high visual quality. These areas include the Feather River, American River, and Cosumnes River. Most segments parallel existing transmission lines, which in certain visual settings, dominate the landscape.

#### 4.14.2 ENVIRONMENTAL CONSEQUENCES

The Proposed Action and alternatives can create visual impacts as a result of construction of new transmission lines. Impacts to visual resources would be direct and long term, lasting for the life of the Proposed Action and alternatives.

##### 4.14.2.1 STANDARDS OF SIGNIFICANCE

The Proposed Action and alternatives would cause significant and adverse impacts if they substantially change

- The quality of any scenic resource,
- Any scenic resource in the study area known to have rare or unique value,
- The view from, or the visual setting of, any designated or planned park, recreation, wilderness, natural areas, or other visually sensitive land use,
- The view from, or the visual setting of, any designated scenic travel route,
- The view from, or the visual recreation, education, preservation, or scientific facility, use area, activity, and view point or vista, or
- A view by introducing a negative visual element (such as creating light or reflecting glare).

Western addressed two issues in determining impact significance: 1) the type and extent of actual physical contrast, and 2) the visibility of a given corridor segment or transmission structures. The adverse affects to visual quality depend upon the amount of visual contrast between the proposed facilities and the existing landscape. The assessment of visual resource impacts has focused on incremental impacts where the Proposed Action and alternatives is adjacent to existing transmission line corridors.

##### 4.14.2.2 ENVIRONMENTAL PROTECTION MEASURES

One EPM was identified for visual resources from Table 3-4 that transmission structures would be constructed of galvanized material.

##### 4.14.2.3 IMPACTS FROM PROPOSED ACTION—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION; REALIGNMENTS; RECONDUCTORING ELVERTA SUBSTATION TO TRACY SUBSTATION

New construction along Segments A<sub>1</sub>, B, and a portion of G would result in low incremental visual impacts. The segments would be adjacent to existing transmission lines that dominate the landscape, particularly along Segment B and a portion of Segment G. Except for the crossing of the Feather River the visual quality is average. Although the visual quality of the river is high, other transmission lines cross the river at the same location as proposed for Segment A<sub>1</sub>. This would result in a moderate incremental impact.

For the realignment of the Cottonwood–Roseville line, new transmission line would be constructed along Segment G. No transmission lines currently exist along Segment G from Keys Road east to the intersection of the PG&E Rio Oso–Brighton transmission line (MP 1.7). Residents near Keys Road who now have distant views of transmission lines would view the proposed line from a closer proximity. The new line would result in 1.7 miles of moderate visual impacts to Segment G (MP 0.0 to 1.7). Segments of F and H would be abandoned in place, resulting in no visual change. The reconductoring portion (Segments C, D, and E) of the Proposed Action would cause no apparent visual change and would not be noticeable to the typical viewer.

##### 4.14.2.4 IMPACTS FROM ALTERNATIVE 1—RECONDUCTORING O'BANION SUBSTATION TO TRACY SUBSTATION

Alternative 1 would have nearly the same type of reconductoring issues from O'Banion Substation to Tracy Substation as the Proposed Action reconductoring from Elverta Substation to Tracy Substation. The difference between Alternative 1 and the Proposed Action would be that line Segments A and B between O'Banion Substation and Elverta Substation would be reconducted. Reconductoring of this line would cause no apparent visual changes.

#### **4.14.2.5 IMPACTS FROM ALTERNATIVE 2—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION AND REALIGNMENTS**

Alternative 2 would have the same impacts described for the new construction, realignment, and abandonment portions from O'Banion Substation to Elverta Substation of the Proposed Action.

#### **4.14.2.6 IMPACTS FROM ALTERNATIVE 3—NEW TRANSMISSION ELK GROVE SUBSTATION TO TRACY SUBSTATION**

Alternative 3 would be adjacent to existing transmission lines for its entire length from Elverta Substation to Tracy Substation. These and other existing lines in the area dominate the landscape. This alternative would traverse mostly agricultural fields, where visual quality is average and visual sensitivity is low to moderate. However, at one point, Segment E<sub>1</sub> crosses the Cosumnes River Preserve (MP 3.0 to 3.5) where at the river, the incremental visual impact would be moderate. The overall incremental visual impacts of Alternative 3 line would be low.

#### **4.14.2.7 IMPACTS FROM THE NO ACTION ALTERNATIVE**

No action would result in no new impacts to visual resources. During periodic maintenance and operation of Western facilities and ROWs, workers and their equipment could draw some visual attention for a short time. However, these impacts would not be significant. Mitigating measures would not be required because there would be no new impact on visual resources. Residual impacts would be negligible.

### **4.15 WATER RESOURCES**

#### **4.15.1 AFFECTED ENVIRONMENT**

Water resources and hydrology include surface and groundwater resources in the study area. These resources provide drinking water and agricultural irrigation water, as well as habitat for fish and wildlife species. This section characterizes the water and hydrological resources in the study area and assesses the potential impacts of the Proposed Action and alternatives.

Activities affecting water resources would fall under the CWA (33 U.S.C. § 1251-1387), Section 404 (31 U.S.C. § 1344) permitting requirements, Section 10 *Rivers and Harbors Act* (33 U.S.C. § 403) permitting requirements, and 401 Certification (33 U.S.C. § 1341). Jurisdictional entities include the Central Region of the DWR and the Sacramento District of the USACE.

#### **4.15.1.1 RESOURCE STUDY AREA**

Constructing and maintaining the transmission line and associated access roads could impact water resources. Potential impacts would be limited to the ROWs for the transmission line, pulling and tensioning sites, any construction office or laydown areas, and access roads. Potential impacts could occur on existing access roads as well as new roads. While there could be some limited potential impacts beyond the ROWs boundaries (for example, in the case of a spill into a creek or ditch), it is impossible to define the boundaries for such potentialities. Therefore, this analysis considers the area within the ROWs to be the affected environment, as physical impacts to water resources should be limited to those areas.

#### **4.15.1.2 ISSUES OF ENVIRONMENTAL CONCERN**

Issues of environmental concern for water resources include erosion, compaction, sedimentation from construction disturbance, blocked drainage, introducing construction debris or other fill into surface waters, spills of petrochemicals or other contaminants that could reach surface water or groundwater, impacts from excavating structure foundations, damage to irrigation improvements, and depleted water resources. These issues are somewhat heightened for the Proposed Action and alternatives due to the large number of ditches, canals, rivers, and creeks, and the proximity of the water table to the land surface.

#### **4.15.1.3 CHARACTERIZATION**

The Proposed Action and alternatives are in the central portion of California's Central Valley. To the north is the Sacramento Valley, and to the south the San Joaquin Valley. Surface water drains toward the study area, from which the region drains generally south-southwest, converging into the San Francisco Bay Delta and ultimately the Pacific Ocean by way of San Francisco Bay. The DWR has established subbasins within the Central Valley; the Proposed Action and alternatives are in portions of the Southern Sacramento Drainage Basin, the eastern portion of the Delta Drainage Basin, and the northern portion of the San Joaquin Drainage Basin.

The northern portion of the study area is primarily drained by the Sacramento River and its larger tributaries, including the American and Feather rivers. The southern portion is drained by the San Joaquin River and its tributaries, including the Cosumnes, Middle, and Old rivers. The San Joaquin River in this area is also the eastern part of the Stockton Deep Water Channel.

Irrigated agriculture on the flat valley floor in the study area has led surface water resources to be heavily devel-

oped. To the north of Sacramento, irrigation water floods rice paddies. South of Sacramento, there are extensive networks of irrigation ditches and canals, improved natural creeks, ponds, lakes, and other irrigation system. Some irrigation ditches and canals are managed by the Bureau and USACE. Many systems are managed by irrigation districts that the transmission lines traverse. These irrigation districts are listed below.

- Sutter Butte Mutual Water Company
- South Sutter Water District
- Natomas Central Municipal Water District
- Rio Linda Water District
- City of Sacramento Water Service Area
- Sacramento County Water District
- Citizens Utility Company
- Omochumne-Hartnell Water District
- Woodbridge Irrigation District
- Woodbridge Water Utility and Conservation District
- Central Delta Water Agency
- Stockton East Water District
- South Delta Water Agency
- Byron Bethany Irrigation District

In general, the study area falls into three main categories: urban; mixed agriculture and newer residential development; and agriculture. Much of the agricultural area is irrigated. A given field may be irrigated or not in any particular year depending on the crop. The area has abundant surface water in lakes, ponds, wetlands, sloughs, creeks, irrigation canals and drainages, and flooded fields. The water table is near the ground surface throughout the study area, which is essentially one large floodplain.

Table 4.15-1 lists all water bodies crossed by the segments of the Proposed Action and alternatives, and the following paragraphs describe the water resources by segment from the northern end of the study area to the southern end. See Figures 3-2 to 3-7 for segment locations and milepost information.

Segments A and A<sub>1</sub>, which are the same route except for a minor deviation at Pleasant Grove Cemetery, leave O'Banion Substation and trend generally southeastward along the northeast dike of the Sutter Bypass, a 0.75 to 1 mile-wide drainage channel. Segments A and A<sub>1</sub> are 22.4 miles long and pass through very flat, flood irrigated cropland including rice paddies. The segments span or are near irrigation canals, drainage ditches, creeks, wetlands, and marshes. At MP 9 of Segments A and A<sub>1</sub>, the route diverges from the Sutter Bypass and crosses the Feather River perpendicularly at MP 11.5 and the East Side Canal at MP 17.5. This area is predominantly cropland, becoming mostly grassland at MP 10.5.

Segments A and A<sub>1</sub> intersect Segments B and F about 4.2 miles north of Elverta Substation. Segments B, F, G, and H form a quadrilateral approximately two miles wide and four miles long north of Elverta Substation. This area, like that to the north, is very flat and drained by various creeks, sloughs, and ditches. The area is mainly pastureland with some cropland.

Segment C is 11.2 miles long and extends from Elverta Substation into the Sacramento metropolitan area, ending at Hurley Substation east of downtown Sacramento, just north of the American River. The area south of Elverta Substation is flat, mixed irrigated agricultural land and pastureland that is rapidly being converted to suburban housing developments. Surface water remains abundant, with the route crossing several creeks, canals, and ditches—many of which drain into the Natomas East Drainage Canal.

**Table 4.15-1. Water Crossings**

Segment	Mile-post	Water Body <sup>1</sup>	CA Quad	County	Width <sup>2</sup> (feet)	Directions	Structure Number
A	2	Gilsizer Slough	Gilsizer Slough	Sutter	150	N to S	137/1-138/1
A	11	Nelson Slough	Nicolaus	Sutter	<100	NW to SE	146/1-147/1
A	11.5	Feather River	Nicolaus	Sutter	500	NW to SE	146/1-147/1
A	13.5	Coon Creek	Verona	Sutter	<100	NW to SE	148/1-149/1
A	15.25	Bunkham Slough	Verona	Sutter	<100	NW to SE	150/1-151/1
A	16.8	Bunkham Slough	Verona	Sutter	<100	NW to SE	150/1-151/1
A	17.3	East Side Canal	Verona	Sutter	150	NW to SE	152/1-153/1
A	19.75	Pleasant Grove Creek	Pleasant Grove	Sutter	<100	NW to SE	155/1-156/1
A	21	Curry Creek	Pleasant Grove	Sutter	<100	NW to SE	156/1-157/1

**Table 4.15-1. Water Crossings**

Segment	Mile-post	Water Body <sup>1</sup>	CA Quad	County	Width <sup>2</sup> (feet)	Direc- tions	Structure Number
C	0.7	Natomas East Main Drainage Canal	Rio Linda	Sacramento	<100	W to E	0/6-0/3
C	7.7	Natomas East Main Drainage Canal	Sacramento East	Sacramento	150	N to S	7/1-7/5
D	2.5	American River	Sacramento East	Sacramento	250	NW to SE	13/2-13/4
D	6.2	Morrison Creek	Carmichael	Sacramento	<100	N to S	17/1-18/2
D	7.8	Elder Creek	Elk Grove	Sacramento	<100	N to S	18/2-19/1
D	12.8	Laguna Creek	Elk Grove	Sacramento	<100	N to S	23/1-24/1
D	14.6	Elk Grove Creek	Elk Grove	Sacramento	<100	N to S	25/1-26/1
E	1.7	Small Lake	Galt	Sacramento	200	N to S	28/1
E	2.25	Lake	Galt	Sacramento	350	N to S	28/1-29/1
E	3.5	Cosumnes River	Galt	Sacramento	250	N to S	29/1-30/1
E	4.4	Badger Creek	Galt	Sacramento	<100	N to S	30/1-31/1
E	5.25	Intermittent Stream	Galt	Sacramento	<100	N to S	31/1-32/1
E	6	Laguna Creek	Galt	Sacramento	<100	N to S	32/1
E	6.8	Intermittent Stream	Galt	Sacramento	<100	N to S	32/1-33/1
E	7.6	Deadman Gulch	Galt	Sacramento	200	N to S	33/1-34/1
E	8.25	Potential Wetland Area	Galt	Sacramento	300	N to S	34/1-35/1
E	10.75	Bear Slough	Lodi North	Sacramento & San Joaquin	<100	N to S	37/1
E	11.2	Dry Creek	Lodi North	Sacramento & San Joaquin	<100	N to S	37/1-38/1
E	12.6	Mokelumne River	Thornton	San Joaquin	150	N to S	38/1-39/1
E	22.5	Telephone Cut	Terminous	San Joaquin	100	N to S	48/1-49/1
E	24.3	Pixley Slough	Terminous	San Joaquin	100	N to S	50/1-51/1
E	24.5	Bear Creek	Terminous	San Joaquin	150	N to S	50/1-51/1
E	25.25	Mosher Slough	Terminous	San Joaquin	200	N to S	51/1-52/1
E	26.6	Fourteen Mile Slough	Terminous	San Joaquin	200	N to S	52/1-53/1
E	26.7	Sewage Disposal Ponds	Terminous	San Joaquin	900	N to S	52/1-53/1
E	29	San Joaquin River (Stockton DWSC)	Holt	San Joaquin	600	N to S	55/1-56/1
E	30.2	Mokelumne Aqueduct	Holt	San Joaquin	100	NE to SW	56/1-57/3
E	37.4	Middle River	Holt	San Joaquin	300	NE to SW	63/1-64/1
E	43.4	West Canal	Clifton Court Forebay	Contra Costa & San Joaquin	400	E to W	69/1-70/1
E	44.7	Mendota Canal	Clifton Court Forebay	Contra Costa	250	NE to SW	70/1-71/1

**Table 4.15-1. Water Crossings**

Segment	Mile-post	Water Body <sup>1</sup>	CA Quad	County	Width <sup>2</sup> (feet)	Directions	Structure Number
F	0.3	Curry Creek	Pleasant Grove	Sutter	<100	N to S	
G	2	Curry Creek	Pleasant Grove	Sutter	<100	N to S	
G	2.9	Curry Creek	Pleasant Grove	Sutter	<100	N to S	

Source: Original 2002

<sup>1</sup> USGS California topographical quadrangle sheet title<sup>2</sup> Approximate width along transect as measured off topographic maps

Segment C crosses this canal less than one mile south of Elverta Substation, then roughly parallels the canal on the west side until crossing it again at about MP 7.5. Surface water becomes much less common after the route crosses Interstate 80 at about MP 5.3 and enters more intensive urban development, but there are still canals and drainage ditches, as well as smaller ponds and wetlands.

Segment D is 15.2 miles long and starts at Hurley Substation. It trends southeast before crossing the American River at MP 2.5, then heads south-southeast through progressively less industrial and urbanized areas before it reaches Hedge Substation at about MP 7. Segment D then trends due south, passing the City of Elk Grove on the east at MP 14 and reaching Elk Grove Substation at MP 15. The portion north of Hedge Substation has relatively little surface water compared with the segments further north, crossing only one creek of note, Morrison Creek. South of Hedge Substation, the segment passes through agricultural land with scattered newer housing subdivisions and crosses several creeks. The creeks in this area are, for the most part, natural drainages, not highly developed or rerouted like the creeks and sloughs north of Sacramento. There is much less irrigation in this area, and grassland pasture mixed with some cropland predominates.

Segments E and E<sub>1</sub> are the longest segments at 46.2 miles (Figures 3-6 and 3-7). They proceed south from Elk Grove Substation to about MP 31, then turn southwest into Tracy Substation. At MP 3.5, the segment starts to cross the Cosumnes River and its associated creeks, ditches, ponds, and wetlands. This surface water complex extends about 8.5 miles, and is characterized by pastureland with some cropland. Beyond MP 9, the route crosses several more creeks, ditches, and sloughs before crossing the Mokelumne River at MP 12.5. South of the Mokelumne River, the route crosses many developed canals, drainage ditches, and vineyards with some mixed cropland.

Between MP 19.5 and 29, the route skirts the east side of a large number of intensively developed irrigated fields surrounded by sloughs and wetlands. The segment passes

west of Stockton at MP 27 and crosses the San Joaquin River and Stockton Deep Water Channel at MP 29. At MP 31, still crossing numerous irrigation canals and ditches, the route turns southwest, paralleling Trapper Slough, and continues to cross irrigated cropland. At MP 37.5, the segment crosses the Middle River, and at MP 43.5, the segment crosses the inflow to the Clifton Court Forebay, a manmade water body with almost 3.5 square miles of surface area. The inflow is fed immediately upstream by the Grant Line Canal, Farman and Bell Canal, Old River, and the Delta-Mendota Canal. After crossing the Delta-Mendota Canal at MP 44.8, the segment terminates at Tracy Substation at MP 46.2.

In terms of water resource sensitivity, the entire study area has abundant surface water that could be impacted. However, the entire area is flat, and stream gradients are extremely small. Vegetation reestablishes itself rapidly given the amount of water and growing conditions. Erosion potential is very small as a result. Span lengths at rivers are well within the maximum spans between structures, allowing structures to be located well back from the rivers. The Cosumnes River is the most sensitive area crossed, as there are a number of streams feeding into the river in a wide floodplain at this point. The area is also included in the Cosumnes River Preserve. However, two existing transmission lines on maintained ROW presently traverse this area, and only Alternative 3 would require a new transmission line on new ROW through this area.

#### 4.15.2 ENVIRONMENTAL CONSEQUENCES

Construction and maintenance potential impacts on water resources by the Proposed Action or alternatives would be very similar, although the specific locations might vary depending on the alternative selected. Alternatives that include new transmission lines would have a higher potential for impact than those involving reconductoring. Impacts from access road construction use would be similar for all alternatives, but alternatives requiring more new access roads would have a higher potential for impact. Potential impacts from fuel and chemical spills would be similar for all alternatives. Because of the vast amount of surface water in the study area, some impact to water

resources is unavoidable, but erosion potential is small given the lack of terrain relief, low stream and river gradients, and rapid revegetation conditions.

#### 4.15.2.1 STANDARDS OF SIGNIFICANCE

The Proposed Action and alternatives would have significant and adverse effect on water resources if they

- Substantially degrade water quality,
- Contaminate a public water supply,
- Substantially degrade or deplete groundwater resources,
- Interfere with groundwater recharge, or
- Cause substantial flooding, erosion, or siltation.

#### 4.15.2.2 ENVIRONMENTAL PROTECTION MEASURES

EPMs for water resources from Table 3-4 include the following:

- Hazardous materials would not be drained onto the ground, into streams, or into drainage areas. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, would be removed to a disposal facility authorized to accept such materials.
- Irrigation system features, which are eligible for the NRHP, would be avoided during the siting of new transmission line structures and access roads, and most other irrigation system features would be avoided to the extent practicable in the siting of new structures and access roads.
- In construction areas (for example, material storage yards, structure sites, and spur roads from existing access roads) where ground disturbance is substantial or where recontouring is required, surface restoration would occur.
- Access roads would be built at right angles to the streams and washes to the extent practicable. Culverts would be installed where needed. All construction activities would be conducted to minimize disturbance to vegetation and drainage channels.
- Excavated material or other construction materials would not be stockpiled or deposited near or on stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff or can encroach, in any way, upon the watercourse.
- Nonbiodegradable debris would not be deposited in the ROW. Slash and other biodegradable debris would be left in place or disposed.

- All soil excavated for structure foundations would be backfilled and tamped around the foundations, and used to provide positive drainage around the structure foundations. Excavated soil excess to these needs would be removed from the site and disposed of appropriately.
- Wherever possible, new structures and access roads would be sited out of floodplains. Due to the abundance of floodplains and surface water resources in the study area, complete avoidance may not be possible, and Western will consult with USACE.
- Culverts would be installed where needed to avoid surface water impacts during construction of transmission line structures. All construction activities would be conducted in a manner to avoid impacts to water flow.
- All construction vehicle movement outside the ROW normally would be restricted to predesignated access, contractor-acquired access, or public roads.
- When feasible, all construction activities would be rerouted around wet areas while ensuring that the route does not cross sensitive resource areas.
- Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses would be conducted to prevent muddy water and eroded materials from entering the streams or watercourses with construction of interceptors.
- Runoff from the construction site would be controlled and meet the RWQCB storm water requirements.
- Construction within jurisdictional waters or wetlands may require 401 and 404 permits. These activities would be coordinated with the USACE and RWQCB, as needed. Thus, there would be no significant impacts.

#### 4.15.2.3 IMPACTS FROM PROPOSED ACTION—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION; REALIGNMENTS; RECONDUCTORING ELVERTA SUBSTATION TO TRACY SUBSTATION

The Proposed Action would involve the greatest number of new structures compared to the other alternatives, resulting in 66 acres of long-term disturbance. Using the EPMs, the Proposed Action would not substantially degrade water quality, contaminate a public water supply, degrade or deplete groundwater resources, interfere with groundwater recharge, or cause any substantial flooding, erosion, or silting. Therefore, no significant impacts would be expected.

#### 4.15.2.4 IMPACTS FROM ALTERNATIVE 1—RECONDUCTORING O'BANION SUBSTATION TO TRACY SUBSTATION

Alternative 1 would involve fewer new structures than either the Proposed Action or Alternative 3. It would have more new structures than Alternative 2. Alternative 1 is entirely reconductoring, which would have less environmental impact than new construction on new ROW. Alternative 1 would also not impact any additional acreage, as it would be constructed entirely on existing ROW using existing access roads.

Using EPMs, Alternative 1 would not substantially degrade water quality, contaminate a public water supply, degrade or deplete groundwater resources, interfere with groundwater recharge, or cause any substantial flooding, erosion, or silting. Because it is entirely a reconductor project, with minimal surface disturbance, Alternative 1 would have the least impact to water resources. However, no alternative would cause significant impacts to water resources. The comparison of alternatives assesses various levels of minor impacts.

#### 4.15.2.5 IMPACTS FROM ALTERNATIVE 2—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION AND REALIGNMENTS

Alternative 2 would have exactly the same impact on water resources as the Proposed Action north of Elverta Substation. It would temporarily disturb 515 acres and disturb 66 acres for the long term. Alternative 2 would require fewer new structures than any alternatives and the same number of new access roads as the Proposed Action. Using EPMs, Alternative 2 would not substantially degrade water quality, contaminate a public water supply, degrade or deplete groundwater resources, interfere with groundwater recharge or cause any substantial flooding, erosion, or siltation.

#### 4.15.2.6 IMPACTS FROM ALTERNATIVE 3—NEW TRANSMISSION ELK GROVE SUBSTATION TO TRACY SUBSTATION

Although the impacts of Alternative 3 would be confined between Elk Grove Substation and Tracy Substation, it would be all new construction on new ROW. Therefore, this alternative affects more acreage and requires more miles of access roads than any other alternative. This alternative also has the highest potential impacts to water resources. Even so, no significant impacts have been identified. Using EPMs, Alternative 3 would not substantially degrade water quality, contaminate a public water supply, degrade or deplete groundwater resources, interfere with groundwater recharge, or cause any substantial flooding, erosion, or siltation.

#### 4.15.2.7 IMPACTS FROM THE NO ACTION ALTERNATIVE

Under the No Action Alternative, the existing 230-kV transmission system between O'Banion Substation and Tracy Substation would be operated and maintained as it is presently. Western would periodically access the line for routine maintenance or emergency repairs along the existing ROW and access roads. Depending upon the location and the season, temporary and insignificant impacts to water resources could occur because of vehicle access for maintenance purposes. Routine vegetation management activities could also cause temporary insignificant impacts by increasing the potential for erosion and sedimentation by removing ground cover and soil compaction. There would be very low risks of physical damage to irrigation improvements or fuel spills during fieldwork, but the damage would promptly be repaired or spills cleaned up under Western's policies and applicable environmental law and regulations.

### 4.16 WETLANDS

#### 4.16.1 AFFECTED ENVIRONMENT

This section describes existing wetland conditions within the study area and how the Proposed Action and alternatives would affect wetlands. Wetlands provide natural flood protection and erosion control, recharge surface and ground waters, and maintain and improve local water quality. They are among the most productive and biologically diverse ecosystems in the world, providing dynamic, specialized habitat for a wide variety of common and rare plant and animal species. Environmental regulations have been developed to preserve and protect the unique habitat types and species they support. Table 4.16-1 and Figures 4-4, 4-5, and 4-6 present the wetlands within the study area.

Activities affecting wetlands are regulated under Section 404 of the CWA (33 U.S.C. §1344 *et seq.*) and EO 11990, Protection of Wetlands (42 FR 26961). Areas that meet wetland criteria, established by the USACE, are subject to the regulatory jurisdiction of USACE, pursuant to Section 404 of the CWA. DOE policy and procedures in 10 CFR 1022 ensure that DOE activities in wetlands comply with the EO requirements. This section contains information on avoiding activities impacting wetlands to comply with 10 CFR 1022.

##### 4.16.1.1 RESOURCE STUDY AREA

The study area for wetland resources is the transmission line corridor along the existing ROW alignments. This includes ROW intersections with portions of the Sutter Bypass, the Feather, American, Cosumnes, Mokelumne, San Joaquin rivers, and smaller tributaries and flood-

plains. Wetland resources may be impacted by new construction (directly or indirectly), structure replacement, new and existing access roads, and temporary work sites (pulling, tensioning, or staging areas).

#### 4.16.1.2 ISSUES OF ENVIRONMENTAL CONCERN

Activities may destroy or degrade the biological (species diversity and habitat) values of wetlands and interfere with or eliminate their beneficial functions in the ecosystem. These impacts may occur in study area wetlands because of excavation or filling, disturbance of hydrologic patterns, increased sedimentation from disturbed area runoff, and increased access and exploitation by humans and invasive plant species. Section 404 of the CWA requires a permit before any discharge of dredged or fill material into “Waters of the United States.” Waters of the United States include navigable waters, interstate waters, and all other waters where the use, degradation, or destruction could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Pursuant to Section 404 of the CWA, USACE regulates and issues permits for such activities. Nearly all surface waters and wetlands in California meet the criteria for Waters of the United States, including intermittent streams and seasonal lakes and wetlands. Activities that require a permit under Section 404 include placing fill or riprap, grading, mechanized land clearing, and dredging. Any activity that deposits dredge or fill material within the “Ordinary High Water Mark” of Waters of the United States usually

requires a permit, even if the area is dry when the activity takes place. The level of permitting required is determined by the scope of the action and level of disturbance to Waters of the United States.

#### 4.16.1.3 CHARACTERIZATION

Wetland resources within the study area were determined from a review of the USFWS National Wetlands Inventory (USFWS 1990), the USDA Soil Conservation Service Local Identification Maps, USGS Topographic Maps of the study area, and various State of California wetland inventories. Western conducted field surveys of wetland resources June 25 through June 28, 2001, November 28, 2001, and February 21 through February 22, 2002. Table 4.16-1 lists field determinations based on vegetative and hydrologic features and classified according to Cowardin (Cowardin, *et al.*, 1979).

The field survey recorded all wetland and floodplain habitats observed along the existing, proposed, and alternative ROWs. The results are presented in this section. Figures 4-4 through 4-6 show where various segments intersect and could impact wetland habitats. Specific descriptions of those intersections follow.

Western did not determine Section 404 jurisdictional status of wetland resources encountered. When the final Proposed Action or alternative is selected, any impacted wetlands would be evaluated for jurisdictional status during consultation with the USACE. Additionally, the existence and extent of vernal pool habitat was not

**Table 4.16-1. Wetland Types**

Wetland Type	Description
<b>Fresh Water Emergent</b>	Characterized by erect, rooted, herbaceous, hydrophytic vegetation (for example, sedges, rushes, curly dock, cattail, bulrush, arrowhead); frequently flooded or saturated soils.
<b>Riverine</b>	Freshwater emergent wetland located within a watercourse channel that lacks trees and shrubs, persistent emergents, mosses, and lichens.
<b>Lacustrine</b>	Freshwater emergent wetlands associated with deepwater habitats (depressions or dammed river channels) that lack trees and shrubs, persistent emergents, mosses, and lichens.
<b>Palustrine</b>	Freshwater emergent wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, separate from or associated with riverine or lacustrine wetlands.
<b>Valley-Foothill Riparian</b>	Mature riparian forest with canopy, subcanopy, shrub, and herbaceous layers, including plant species like cottonwood, ash, oak, alder, box elder, willow, blackberry, sedges, and rushes.
<b>Vernal Pool</b>	Seasonal, perched fresh water wetlands and swales of varying size found in a larger mosaic of grassland, oak woodland or riparian woodland, including plant species like wild oats, ripgut brome, annual ryegrass, and foxtail

Source: modified from Cowardin *et al.*, 1979

always definitive due to seasonal water conditions and access limitations.

Segments A and A<sub>1</sub> intersect lacustrine and palustrine freshwater emergent wetlands associated with Gilsizer Slough at MP 1.8 to 2.0. The wetland is approximately 0.2 mile long totaling 3.4 acres within the existing ROW. Wetland vegetation consists of willow, bullrush, cattail, sedge, arrowhead, and water hyacinth. Structure 137-1 is sited within the wetland, occupying 0.1 acre of the wetland area.

The study area crosses the Feather River levee setback zones and the Feather River at MP 11.0 to 11.6. The existing ROW intersects 0.4 mile (six acres) of intermittent valley-foothill riparian wetlands in the north and south levee setback zones and 0.2 mile (three acres) of Waters of the United States. The wetland vegetation is generally comprised of cottonwood, box-elder, willow, and blackberry. The setback zones show evidence of prior agricultural disturbance. Existing Structure 146-4 is within this area, but well away from the valley-foothill riparian vegetation. Between MP 13.3 and 13.5, the segment crosses 0.2 miles (three acres) of valley-foothill riparian wetland (cottonwood and willow), including a small riverine wetland associated with Coon Creek. The existing transmission structures span the wetland and riparian area.

Segment A intersects 0.1 mile (1.5 acres) of valley-foothill riparian wetland and 0.1 mile (1.5 acres) of Waters of the United States associated with the East Side Canal between MP 17.4 and 17.6. Wetland vegetation consists of cottonwood, willows, blackberry, and some cattails surrounding small areas of annual grassland. Two existing structures, 152-4 and 152-5 are within the grassland areas. Segment A<sub>1</sub> diverges from Segment A at MP 17.4 because of a 2.8-mile proposed realignment from MP 17.4 to 20.2. The realignment would move structures 152-4 and 152-5 away (east) from the wetland area resolving access issues for structure and line repair and maintenance. Segments A and A<sub>1</sub> rejoin in parallel at MP 18.2. A small, freshwater emergent wetland (0.1 mile, 1.5 acres) associated with Pleasant Grove Creek occurs between MP 19.7 and 19.8 near existing Structure 154-5. The area is a rice field with cattails intermixed.

Segment B crosses two unnamed drainages at MP 0.6 and 0.8 with 0.1 mile (1.5 acres) of freshwater emergent wetland within the ROW. No structures are noted within the wetland areas. There may be small amounts of vernal pool habitat within the ROW between MP 1.6 and 2.8 (Structures 159-3 through 160-3).

Segment C, running south from Elverta Substation, intersects a 0.5-mile length (7.6 acres) of potential vernal

pool habitat with some palustrine wetlands (cattails and bulrush) within the existing ROW between MP 0.3 and 0.8. Existing Structure 0-3 stands on a channel margin in this area. Another 0.5-mile (7.6 acre) length of potential vernal pool habitat is intersected between MP 4.3 and 4.8. Existing Structures 3-3 through 3-6 are in this area. Valley-foothill riparian habitat and small riverine, lacustrine, and palustrine wetlands possibly with vernal pools, run the length of the existing ROW in the American River floodplain from MP 8.0 to 11.2 (3.2 miles, 48.5 acres). Existing Structures 8-0 through 11-0 are within this area.

Segment D intersects approximately 0.6 mile (9.1 acres) of the valley-foothill riparian habitat within the existing ROW along the north side of the American River (MP 0.0 through 0.6). This habitat includes small areas of palustrine and lacustrine wetland. Structure 11-4 is just west, but outside of permanent wetland habitat associated with a small, nearby drainage. The ROW spans the American River between MP 2.3 and 2.5. The span crosses 0.1 mile (1.5 acres) of valley-foothill riparian area on the north and south banks and 0.2 mile (3 acres) of Waters of the United States. Small areas of vernal pool habitat may exist near MP 4.1 and 4.5 (structures 15-3 and 16-2). In addition, vernal pool habitat may exist between MP 10.0 and 11.9 (structures 21-2 through 22-5). Small areas (approximately 0.2 miles and 3 acres total) of freshwater emergent wetland (palustrine and lacustrine) and valley-foothill riparian areas occur where the ROW spans Morrison, Elder, Laguna, and Elk Grove creeks at MP 6.0, 7.8, 12.8, and 14.7, respectively. Potential vernal pool habitat (1.5 miles, 22.7 acres) occurs between MP 11.9 and 12.8 (structures 22-6 through 23-4) and around MP 14.7 in association with annual grasslands near Laguna Creek tributaries, and Elk Grove Creek.

Segments E and E<sub>1</sub> intersect Waters of the United States (ponds) at MP 1.7 and 2.2. About 0.3 mile (4.5 acres) of this habitat occurs within this portion of the ROW. Structures 27-9 through 28-3 are in this area. The ROW enters the Cosumnes River corridor at MP 2.9. The existing line from MP 3.0 to 4.7 crosses 0.6 mile (9.1 acres) of valley-foothill riparian habitat and palustrine wetlands and 0.1 mile (1.5 acres) of Waters of the United States where the Cosumnes River and its overflow are spanned. The structures in this reach are 29-3 through 30-2. Structures 30-4 and 3-04 span Badger Creek and its floodplain between MP 4.2 to 4.4, crossing approximately 0.1 mile (1.5 acres) of Waters of the United States and palustrine wetland. Waters of the United States and significant vernal pool habitat exist within the ROW from MP 5.0 through 6.3. The vernal pool complex (1.1 miles, 16.7 acres) is associated with the floodplain of Laguna Creek. Structures 32-1 and 32-2 span Laguna

Creek at MP 6.0. The ROW (existing Structures 33-4 and 34-1) crosses 0.2 mile (3 acres) total of valley-foothill riparian habitat and Waters of the United States at MP 7.6, 8.6, and 8.9. Vernal pool habitat is possible south of MP 7.6 and near MP 10.0. Valley-foothill riparian habitat (0.1 mile, 1.5 acres) associated with Waters of the United States (0.2 mile, 3 acres) in Dry Creek and the Mokelumne River are intersected where the ROW spans them at MP 11.2 (Structures 37-2 and 37-3) and MP 12.5 (Structures 38-4 and 39-1). Small lacustrine and palustrine wetlands (less than 0.1 miles, 1.5 acres) lay between Structures 44-2 and 44-3 at MP 18.2. The ROW crosses a 0.1 mile (2 acres) seasonal freshwater emergent wetland near Structure 45-1 at MP 18.9.

Segments E and E<sub>1</sub> intersect a large, significant complex of riverine, lacustrine, palustrine, and valley-foothill riparian wetlands called Pixley Slough associated with Bear Creek at MP 24.3 through 24.5. The 0.2-mile (3 acres) length beneath the ROW contains extensive cattail, bulrush, and deepwater wetland habitat. Structure 50-4 is sited within this area. The ROW intersects similar habitats at MP 26.6 to 26.7 (0.2 mile, 3 acres) where the existing line crosses Five Mile Slough. Structures 52-5 and 52-6 span this area. The ROW crosses the San Joaquin River at MP 28.9 to 29.2. The north and south banks support some marginal valley-foothill riparian habitat (0.2 mile, 3 acres) with 0.1 mile (1.5 acres) of Waters of the United States in the river channel. The ROW does not intersect any wetland habitat between the San Joaquin River crossing and Tracy Substation. However, it intersects Waters of the United States (approximately 0.2 mile and 3 acres for each crossing) at MP 37.3 (Middle River), MP 43.4 (Old River), and MP 44.7 (Delta Mendota Canal).

Segment F spans Curry Creek at MP 0.3. Some valley-foothill riparian habitat is present, but less than 0.1 mile (approximately 0.5 acre).

Segment G intersects and spans Curry Creek and several minor tributaries at MP 2.0, 2.9, 3.7, and 4.7. These areas total 0.2 mile and 3 acres.

Segment H ROW intersects two minor tributaries at MP 1.0, and 2.1. Some valley-foothill riparian habitat is associated with each. Total combined length and area of these habitats within the ROW is approximately 0.1 mile and 1 acre.

## 4.16.2 ENVIRONMENTAL CONSEQUENCES

The Proposed Action and alternatives can create impacts to wetlands during and as a result of construction of new access roads, structures, and temporary work sites within existing and new ROWs. Existing access roads and structures not replaced would continue to be maintained and used as under the No Action Alternative. These

existing features were originally sited to avoid, to the extent practicable, wetlands and Waters of the United States. Structures to be replaced during reconductoring would be constructed on or near the site of the previously existing structure. Construction for new ROW, access roads, structures, realigned ROW, and temporary work sites avoid, to the extent practicable, impacts to wetlands and Waters of the United States. Summaries of impacts to wetlands by line segment and by alternative are provided in Table 4.16-2 and Table 4.16-3.

### 4.16.2.1 STANDARDS OF SIGNIFICANCE

Significance can vary with the duration and source of specific impacts. Impacts may be temporary or long term and direct or indirect:

- Temporary impacts would last only through the construction period,
- Long-term impacts would last as long as the life of the facility,
- Direct impacts occur as a result of construction or operation of the Proposed Action or alternatives, or
- Indirect impacts occur as a result of the presence of the Proposed Action or alternatives usually associated with increased human accessibility to a previously inaccessible area.

The effects of the Proposed Action and alternatives would be considered significant if activities would result in

- Unmitigated temporary or long-term loss of wetland habitat (direct impact),
- Substantially increased access to wetland sites by humans (indirect impact),
- Increased erosion and sedimentation of soils or changes in topography that would significantly impact wetland habitat (direct impact), or
- Introduction of nonnative wetland plant species (indirect impact).

### 4.16.2.2 ENVIRONMENTAL PROTECTION MEASURES

EPMs for wetland resources from Table 3-4 include the following:

- Hazardous materials would not be drained onto the ground, into streams, or into drainage areas. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, would be removed to a disposal facility authorized to accept such materials. Irrigation system features, which are eligible for the NRHP, would be avoided during the siting of new transmission line structures and access roads, and most other irrigation system features would be

**Table 4.16-2. Summary of Impacts by Segment on Wetlands and Waters of the United States**

Segment	Wetland Miles	Wetland Acres	New Structures	Replaced Structures	Temp Acres Impact	Long-Term Acres Impact	Waters of the United States Miles	Waters of the United States Acres
<b>A</b>	0.9	13.4	0	1	0.23	0.1	0.3	4.5
<b>A<sub>1</sub></b>	0.9	13.4	5	0	1.15	0.5	0.3	4.5
<b>B</b>	0.1	1.5	1	0	0.23	0.1	0	0
<b>C</b>	4.2	62.7	0	6	1.38	0.6	0	0
<b>D</b>	2.4	36.3	0	3	0.69	0.3	0.2	3
<b>E</b>	3.1	47.3	0	4	0.92	0.4	0.7	10.5
<b>E<sub>1</sub></b>	3.1	47.3	16	0	3.68	1.6	0.7	10.5
<b>F</b>	0.1	0.5	0	0	0	0	0	0
<b>G</b>	0.2	3	1	0	0.23	0.1	0	0
<b>H</b>	0.1	0.1	0	0	0	0	0	0

Source: Original 2002

**Table 4.16-3. Summary of Impacts by Alternative on Wetlands and Waters of the United States**

Alternative	Wetland Miles Crossed	Wetland Acres Crossed	New Structures	Replaced Structures	Temporary Acres Impacted	Long-Term Acres Impacted	Waters of the United States Miles	Waters of the United States Acres
<b>Proposed Action-New</b>	1.4	18.5	7	0	1.61	0.7	0.3	4.5
<b>Proposed Action-Reconductor</b>	9.7	146.3	0	13	2.99	-	0.9	13.5
<b>1</b>	10.7	161.2	0	14	3.45	-	1.2	18
<b>2</b>	1.4	18.5	7	0	1.61	0.7	0.3	4.5
<b>3</b>	3.1	47.3	16	0	3.68	1.6	0.7	10.5

Source: Original 2002

avoided to the extent practicable in the siting of new structures and access roads.

- In construction areas (for example, material storage yards, structure sites, and spur roads from existing access roads) where ground disturbance is substantial or where recontouring is required, surface restoration would occur.
- Access roads would be built at right angles to the streams and washes to the extent practicable. Culverts would be installed where needed. All construction activities would be conducted to minimize disturbance to vegetation and drainage channels.
- Excavated material or other construction materials would not be stockpiled or deposited near or on stream banks, lake shorelines, or other watercourse perimeters where they can be washed away by high

water or storm runoff or can encroach, in any way, upon the watercourse.

- Nonbiodegradable debris would not be deposited in the ROW. Slash and other biodegradable debris would be left in place or disposed.
- All soil excavated for structure foundations would be backfilled and tamped around the foundations, and used to provide positive drainage around the structure foundations. Excavated soil excess to these needs would be removed from the site and disposed of appropriately.
- To the extent possible, new structures and access roads would be sited out of floodplains. Due to the abundance of floodplains and surface water resources in the study area, complete avoidance may not be possible, and Western will consult with USACE.

- Culverts would be installed where needed to avoid surface water impacts during construction of transmission line structures. All construction activities would be conducted in a manner to avoid impacts to water flow.
- All construction vehicle movement outside the ROW normally would be restricted to predesignated access, contractor-acquired access, or public roads.
- When feasible, all construction activities would be rerouted around wet areas while ensuring that the route does not cross sensitive resource areas.
- Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses would be conducted to prevent muddy water and eroded materials from entering the streams or watercourses with construction of interceptors.
- Runoff from the construction site would be controlled and meet the RWQCB storm water requirements.
- Construction within jurisdictional waters or wetlands may require 401 and 404 permits. These activities would be coordinated with the USACE and RWQCB, as needed.

#### **4.16.2.3 IMPACTS FROM PROPOSED ACTION—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION; REALIGNMENTS; RECONDUCTORING ELVERTA SUBSTATION TO TRACY SUBSTATION**

The Proposed Action intersects 11.1 miles (164.8 acres) of wetland habitat within the existing and new ROW. Of the 163 transmission line structures to be replaced within the existing ROW during reconductoring, approximately 13 are near wetland habitat. These structures would be constructed on the site of the previously existing structures, resulting in temporary, direct impacts up to 3 acres of associated wetlands. Long-term, direct impacts would be the same as the No Action Alternative. No new access roads would be constructed.

Of the 167 new transmission line structures to be constructed because of new or realigned ROW, approximately seven structures would be constructed near wetland habitats. New construction could temporarily impact up to 1.6 acres of wetlands resulting in long-term, direct impacts of 0.7 acre of wetlands.

On average, 0.2 mile of new access road would be required to access each new transmission line structure. If access to seven new structures requires crossing wetland habitat, the result could be up to 1.4 miles or 2.6

acres of long-term, direct impact. Limited, indirect impacts could occur over time due to increased access to previously inaccessible areas. The potential for additional access is small and controlled by EPMs. The resulting indirect impacts would be insignificant.

1.2 miles (18 acres) of Waters of the United States is presently or would be spanned by the existing or new transmission line components.

Temporary work sites (pulling and material storage) create temporary, direct impacts where constructed. The sites would be located in convenient, stable areas outside sensitive habitats to decrease costs, and increase ease of construction and operation. The Proposed Action includes 49 work sites temporarily impacting 19.6 acres. In accordance with EPMs and given the flexibility in siting these temporary work sites, direct impacts to wetland habitat would be unlikely. No long-term or indirect impacts are anticipated.

Transmission lines and temporary work sites normally span water bodies because of the increased difficulty of access and expense of construction in these areas, and because structures are typically sited on higher ground to increase span lengths and improve conductor ground clearance. Typical span widths without special structures are on the order of several hundred feet. Adjusting span width allows avoidance of most water bodies, including wetlands. The EPMs outlined above would be enforced during the construction and maintenance of the transmission line, and in addition to alternative siting, would further reduce direct and indirect impacts to wetlands. Revegetation of disturbed areas would occur rapidly given favorable regeneration conditions. Rapid revegetation would quickly reduce potential erosion, sedimentation, and invasion by nonnative plant species.

However, if preconstruction surveys identify unanticipated, unavoidable impacts to wetlands, Western would complete a survey and delineate the wetland areas. Western would consult with the USACE to determine the jurisdictional status of impacted habitats. In addition, a Section 401 Regional Water Quality Control Board Certification would be required before construction.

#### **4.16.2.4 IMPACTS FROM ALTERNATIVE 1—RECONDUCTORING O'BANION SUBSTATION TO TRACY SUBSTATION**

Alternative 1 intersects 10.7 miles (161.2 acres) of wetland habitat within the existing ROW. Of the 163 structures to be replaced during reconductoring, about 14 transmission line structures are near wetland habitat. The new structures would be constructed on the site of the previously existing structures, resulting in temporary, direct impacts to up to 3.5 acres of associated wetlands.

Long-term, direct impacts would be the same as the No Action Alternative. No new access roads would be constructed. The existing transmission line components span 1.2 miles (18 acres) of Waters of the United States.

Alternative 1 includes 47 work sites temporarily impacting 18.8 acres. Using the EPMs and given the flexibility in siting these temporary work sites, direct impacts to wetland habitat would be unlikely. No long-term or indirect significant impacts are anticipated.

#### **4.16.2.5 IMPACTS FROM ALTERNATIVE 2—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION AND REALIGNMENTS**

Alternative 2 is the same as the Proposed Action from O'Banion Substation to Elverta Substation, but does not include the reconductoring work south of Elverta. This alternative intersects 1.4 miles (18.5 acres) of wetland habitat within the existing and new ROW. Approximately seven new or realigned structures are near wetland habitats. New construction could temporarily impact up to 1.4 acres of wetlands resulting in long-term, direct impacts to 0.7 acre of wetlands. If access to seven new structures requires crossing wetland habitat, the resulting impact could be up to 1.4 miles or 2.6 acres of long-term impact. Limited, indirect impacts could occur over time due to increased access to previously inaccessible areas. The amount of access being added is small and additional access is controlled by EPMs. The resulting indirect impacts would be insignificant. New transmission line components would span 0.3 mile (4.5 acres) of Waters of the United States. Alternative 2 includes 14 work sites temporarily impacting 5.6 acres. Using the EPMs and given the flexibility in siting these temporary work sites, direct impacts to wetland habitat would be unlikely. No long-term or indirect significant impacts are anticipated.

#### **4.16.2.6 IMPACTS FROM ALTERNATIVE 3—NEW TRANSMISSION ELK GROVE SUBSTATION TO TRACY SUBSTATION**

Alternative 3 intersects 3.1 miles (47.3 acres) of wetland habitat within the new ROW. Approximately 16 new structures would be constructed near wetland habitats. New construction could temporarily impact up to 3.7 acres of wetlands, resulting in long-term, direct impacts of 1.6 acres of wetlands. If access to 16 new structures requires crossing wetland habitat, the resulting impact could be up to 3.2 miles or 5.9 acres of long-term impact. Limited, indirect impacts could occur over time due to increased access to previously inaccessible areas. Access would be controlled by EPMs. The resulting indirect impacts would be insignificant. The new transmission line components would span 0.7 mile (10.5 acres) of Waters of the United States. Alternative 3

includes 19 work sites that would temporarily impact 7.6 acres. Using EPMs and given the flexibility in siting these temporary work sites, direct impacts to wetland habitat would be unlikely. No long-term or indirect significant impacts are anticipated.

#### **4.16.2.7 IMPACTS FROM THE NO ACTION ALTERNATIVE**

Without the Proposed Action or alternatives, significant changes to existing facilities or alignment would not occur. No new impacts to wetlands would be expected. Normal operation, maintenance, repairs, and emergency management of the system would continue as in the past. There are recognized temporary and insignificant impacts associated with maintaining access and transmission service.

### **4.17 CUMULATIVE IMPACTS**

Cumulative impacts result from the incremental effect of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions. Requirements for addressing cumulative impacts are to gather and analyze enough data to make a reasoned decision concerning these impacts. Western examined actions that have environmental impacts on the same resources affected by this proposal and similar projects. Western also reviewed other proposed projects including major linear projects that would potentially create impacts on the same resources.

For past actions, Western included existing transmission lines in the study area. Impacts from these past projects were considered for each resource area.

#### **4.17.1 REASONABLY FORESEEABLE PROJECTS**

Table 4.17-1 contains a list of reasonably foreseeable projects. The proposed projects include power generation that would require construction of new transmission lines and interconnection to the Sacramento area power grid.

Cumulative effects for floodplains, geology, soils, health and safety, land use, noise, and wetlands are expected to be negligible. A description of cumulative effects is provided below for air quality, biological resources, cultural resources, electric and magnetic fields, paleontological resources, socioeconomics and EJ, visual resources, and water resources.

#### **4.17.2 AIR QUALITY**

Within the Sacramento area, particulate emissions, VOCs, and NO<sub>x</sub> from construction activities, rice field and agricultural burning, industrial operations (aggregate mining), and vehicle equipment may all impact air quality. Constructing new transmission lines or reconduc-

toring existing lines add to these emissions, but only for the short term. Western would use EPMs to reduce particulate emissions, VOCs, and NO<sub>x</sub>. Therefore, cumulative impacts of the Proposed Action and alternatives, coupled with other area projects, would be considered unavoidable short term impacts. Long-term operation under the Proposed Action or any alternative, along with transmission and other projects in the general area, would not generate long-term significant amounts of air pollution emissions.

#### 4.17.3 BIOLOGICAL RESOURCES

For the short term, the Proposed Action, Alternative 2, and Alternative 3 would affect nonurban areas or areas not developing rapidly that may contain sensitive biological habitat. Much of the study area remains rural, and is expected to remain rural for the near term not affecting these habitats. Although bird strikes would continue, transmission line marking devices and locating new lines next to existing lines would result in lower additive cumulative impacts. Western should be able to satisfactorily avoid or mitigate impacts to biological resources. Cumulative impacts resulting from the Proposed Action, Alternative 2, or Alternative 3, and other area projects would not be significant.

The impacts to vegetation as a result of Alternative 1, reconductoring, would be temporary, as these areas would be replanted following the work. As a result, cumulative impacts to biological resources would be minimal.

#### 4.17.4 CULTURAL RESOURCES

Impacts from the alternatives would be limited to incremental physical impacts to cultural resources located within the existing ROW. Most new transmission lines would be located in areas with other transmission lines where the visual effects would also be incremental.

Western should be able to satisfactorily avoid or mitigate impacts on prehistoric and historic archaeological sites. The potential to avoid or mitigate impacts on TCPs is less clear, although tribal groups would be involved in assessing impacts and identifying and implementing avoidance or mitigating measures.

With adherence to the EPMs, it is likely that the Proposed Action, Alternative 2, and Alternative 3, all of which include building new transmission lines, would only add slightly to the cumulative impacts on the cultural resources of the region. Alternative 1, which only includes reconductoring, would not add to the cumulative impacts on the cultural resources of the region.

#### 4.17.5 ELECTRIC AND MAGNETIC FIELDS

In discussions with planning agencies, Western determined that no new permanent, occupied buildings are planned within 100 feet of Western's ROWs. Because EMFs diminish rapidly with distance from the transmission line, and there is no planned encroachment to the ROWs, there would be minimal EMF cumulative impacts to human health or the environment.

#### 4.17.6 PALEONTOLOGICAL RESOURCES

Impacts to paleontological resources could result if fossil materials are destroyed during excavation in depths of 10 feet or greater. Continued development extending farther into the Central Valley could disturb fossil-bearing sedimentary deposits and potentially damage paleontological resources. The cumulative impact is related to the increasing disturbance or removal of fossil-bearing rock. With proper site monitoring, the potential for loss of paleontological resources would be minimal, and cumulative impacts would be negligible.

**Table 4.17-1. Projected Projects with Related Transmission Lines**

Project	Proponent	County	Size (MW)	Interconnect	In Service Date	Comments or Date Approved
East Altamont Energy Center	Calpine	Alameda	1,100	Western	5/04	Online May, 2004
SMUD Cosumnes Power Plant Project Combined Cycle	SMUD	Sacramento	1,000	SMUD	10/04	Online October, 2004

Source: Original and California Energy Commission (CEC) web site <http://www.energy.ca.gov/sitingcases/current.html> August 2002

MW: megawatt

SMUD: Sacramento Municipal Utility District

#### 4.17.7 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Under the No Action Alternative, the current strain on electric power supply and distribution would continue, which could result in power supply shortfalls and disruptions as additional demands for power are made to support future development. These supply and distribution difficulties could decrease the efficiency of business operations in the study area and have an adverse effect on the overall economy. Other related spending in local markets would continue as beneficial economic effects.

#### 4.17.8 VISUAL RESOURCES

Past, existing, and future development have and would continue to visually alter the landscape. Negative effects to the visual quality of the area from development include existing utility lines and associated cleared ROWs, commercial development, major roads, abandoned buildings, industrial land uses, aggregate mining, and sand and gravel pits. Where the alternative would be located near one of these existing negative visual features, the impacts would result in an additive adverse effect to the existing visual impacts. However, locating the proposed transmission line adjacent to an existing utility corridor would typically be preferable to locating the line in a previously undisturbed landscape. The additive cumulative impacts for any alternative would not be significant.

#### 4.17.9 WATER RESOURCES

Growth and development in the Sacramento area would increase water demand. Construction activities projected for the Proposed Action and alternatives would cause slight increases in surface-water sediment load and water use. These effects would be transitory. Incremental increases in surface-water sediment load from maintenance would not result in significant cumulative impacts.

### 4.18 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts are defined as those impacts that could not be reduced to less than significant levels through EPMs (Table 3-4), other mitigation measures, or using another alternative. Short-term significant unavoidable impacts for air emissions ( $PM_{10}$ , VOCs, and  $NO_x$ ) would occur for the Proposed Action and alternatives.

#### 4.19 SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY

During the 50- to 60-year life of the transmission line, the construction phase for the Proposed Action would cause the most ground disturbance, with 581 acres of temporary disturbance to the physical environment. Impacts would include approximately 414.5 acres of new ROW, 76 acres for transmission structure installation, 50.9 acres for access roads, 19.6 acres for pulling sites and approximately 20 acres for material storage areas.

After construction, the majority of disturbed areas, including new ROW, pulling sites, material storage areas, and structure sites, would be reclaimed to preconstruction use. Permanent land dedicated to the facilities, resulting in about 66 acres, would experience long-term disturbance for the transmission structures and access roads.

Potential adverse effects to air quality would be short term, mainly localized, and result from construction. These short-term impacts would exceed regulatory thresholds for  $PM_{10}$ , VOC, and  $NO_x$  emissions. Short-term and long-term impacts to soils and water quality would occur. Accelerated soil erosion would occur, particularly on steep slopes, from construction. Water quality impacts would be limited and short term.

Potential effects to biological resources, including sensitive plant species, sensitive habitats, and wildlife, primarily would be long term due to the permanent removal of vegetation and other wildlife species habitat. Habitat recovery in areas of temporary disturbance would vary according to the vegetation type and the presence or absence of special-status rare plant species.

Impacts to historical resources, related to additive adverse visual effects, would be for the life of the project, if facilities were removed when no longer needed. Similarly, direct physical impacts to Native American sites and paleontological resources are considered long term (permanent) and nonrenewable.

Potential land use effects would be largely short term and result from construction noise, dust, and equipment operations. Short-term impacts would occur primarily to recreational uses. Agricultural practices could continue on most of the ROWs, except where structures are proposed. Overall, transmission line corridor productivity would remain similar to existing conditions. Land uses would not change, except where access road spurs and structures would be located.

Visual effects would be both short term and long term. Long-term additive impacts would result from the presence of the new transmission lines. Visual impacts would be somewhat increased during construction due to the presence of equipment and related fugitive dust. Noise and transportation effects would be short term and would result from construction activities.

#### 4.20 IRREVERSIBLE/IRRETRIEVABLE COMMITMENT OF RESOURCES

Resources committed to the proposed project would be material and nonmaterial, including financial resources. Irreversible commitment of resources means that those resources, once committed to the project, would continue to be committed throughout the 50- to 60-year life of the Proposed Action and alternatives. Irretrievable commitment of resources means that resources used, consumed,

destroyed, or degraded during construction, operations, maintenance, and abandonment of the Proposed Action and alternatives could not be retrieved or replaced for the life of the Proposed Action and alternatives or beyond. Irreversible and irretrievable commitments of resources for the Proposed Action and alternatives are summarized in Table 4.20-1.

## 4.21 GROWTH-INDUCEMENT

The following criteria are used to evaluate whether the alternatives would result in potential significant individual or cumulative growth-inducing impacts.

Growth-induced impacts would occur if the Proposed Action or alternatives:

- Directly or indirectly, foster economic or population growth,
- Remove obstacles to growth in the area,
- Provide new employment,
- Provide access to previously inaccessible areas or extend public services to previously unserved areas,
- Tax existing community services, or
- Cause development elsewhere.

### 4.21.1 PROPOSED ACTION AND ALTERNATIVES

Economic and population growth in the Sacramento area has increased electrical demand. Based on new and approved residential and commercial development, electrical demand is projected to grow in the foreseeable future. The Proposed Action and alternatives would accommodate portions of existing and approved new development in the Sacramento area. Therefore, the Proposed Action and alternatives would not induce growth (directly or indirectly) as discussed in the following sections.

#### 4.21.1.1 REMOVE OBSTACLES TO GROWTH

Insufficient infrastructure in an area is generally an obstacle to growth because new development typically requires infrastructure improvements including water, wastewater treatment, roadways, and power facilities to be available before developments are approved by local jurisdictions. However, growth in the Sacramento area is presently occurring, and many more developments have been approved or are pending approval, regardless of the presence or absence of electric service. Moreover, local jurisdictions and developers assume that electric service would be provided regardless of where the development occurs.

Because a portion of the purpose of the Proposed Action and alternatives would respond to this development, it would not remove any current obstacles to growth. It is

unlikely that implementing the Proposed Action and alternatives would encourage additional growth in the Sacramento area because growth is regulated by the local jurisdictions.

#### 4.21.1.2 NEW EMPLOYMENT

The Proposed Action and alternatives would provide short-term construction employment but no permanent employment. A maximum of approximately 70 daily workers would be on the various job sites during peak construction periods. Construction of the Proposed Action and alternatives would draw the local labor workforce pool from the affected counties. Nonlocal labor would be employed for specialized skills that may not be available locally. The limited, temporary nature of this employment would not result in long-term growth. Table 3-2 provides a breakdown of employment skills for reconductoring and new transmission line construction.

#### 4.21.1.3 EXTENDED ACCESS OR PUBLIC SERVICES

The Proposed Action and alternatives would not require extending public services to previously unserved areas. As discussed previously, the Proposed Action and alternatives is in response to new and proposed growth approved by the local jurisdictions. The proposed transmission line improvements are necessary to provide reliable power system operation and would not directly serve areas they pass through. New access roads would be required in some areas along the ROW for the Proposed Action and the alternatives. These would be primarily roads on private land maintained by Western and would not be accessible to the public. Western does not propose to provide public access along the transmission line ROW.

#### 4.21.1.4 EXISTING COMMUNITY SERVICES

The Proposed Action and alternatives would not tax existing community services or require water, wastewater, or permanent solid waste services. The need for city- and county-provided services, such as road improvements, law enforcement, and fire protection, would be negligible.

#### 4.21.1.5 NEW DEVELOPMENT

As discussed previously, the Proposed Action and alternatives would not directly result in new development, either in the Sacramento area or elsewhere, but would be in response to existing and known planned development.

### 4.21.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, there would be no growth-inducing impacts.